

REMARKS

Reconsideration of this application, in view of the following remarks, is respectfully requested.

Claims 1-53 were originally presented for consideration in this application. Claims 8, 10, 11 and 47 have previously been canceled without prejudice or disclaimer. Accordingly, claims 1-7, 9, 12-46 and 48-53 are currently pending in this application.

The Office Action incorrectly lists claim 8 as pending in the application.

The following rejection was set forth in the Office Action:

Claims 1, 2, 4, 6-9, 29, 30, 37-41, 44, 46, 49, 52 and 53 stand rejected under 35 USC §103 as being unpatentable over U.S. Publication No. 2005/0051986 (Galazin) in view of U.S. Patent No. 6,893,733 (Obeshaw).

Regarding the obviousness rejections, the Office Action alleges that it would have been obvious to a person skilled in the art at the time the invention was made to combine the teachings of the Galazin and Obeshaw references and thereby produce the invention defined by the claims of the present application. The applicant respectfully disagrees.

The rejections do not satisfy the requirements set forth in the seminal U.S. Supreme Court case of *Graham v. John Deere* for evaluating whether an invention would have been obvious to a person of ordinary skill in the art at the time the invention was made. These requirements include determining the level of skill of the person having ordinary skill in the art, the scope and content of the prior art, and the differences between the claimed invention and the prior art. Additional considerations may include factors such as failure of others to solve the relevant problem, long felt but

unsatisfied need, skepticism of others, teaching away in the prior art, unexpected results, copying, the pace of innovation in the art, commercial success, industry accolades, etc.

In the *Graham v. John Deere* opinion, the Supreme Court also explicitly warned against “slipping into use of hindsight” in obviousness determinations. *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966). Additionally, in the more recent case of *KSR v. Teleflex*, the Supreme Court has reiterated that an invention’s merit is not to be evaluated from a perspective of a person having the benefit of already knowing the solution conceived by the inventor, but rather as it would have been perceived by a person having only ordinary skill in the pertinent art. *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742-43 (2007).

In the present case, the person having ordinary skill in the art would likely have a bachelor’s degree in engineering or a related applied science field, and would likely have several years’ experience in designing suspension system components. Such a person would be aware of conventional trailing arm suspension systems.

Galazin discloses a trailing arm suspension with an optimized I-beam. Finite element analysis is used to precisely configure the shape and thickness of the I-beam flanges and web portions to accommodate the stresses to which the beam will be subjected. Galazin teaches that preferably the trailing arm is fabricated using generally conventional casting methods (see paragraph 0043).

Obeshaw discloses various composite constructions that may be suitable as a part or component in a vehicle. Obeshaw also discloses that at least one structural component, such as a bracket, coupler, cap, or the like, could be incorporated into a structure to make various vehicular parts (col. 8, ll. 13-36). However, the composite shapes taught by Obeshaw are closed tubular shapes with triangular, rectangular, hexagonal, octagonal, polygonal, elliptical, and circular cross-sections (col. 9, l. 66 to col. 10, l. 45) and not I-beam shapes.

Galazin discloses that his design approach results in the trailing arm at any section being precisely tailored to the design stress to which the beam will be subjected at that section, reducing the trailing arm material to only that necessary at each section

and economizing on weight and cost. Galazin goes on to state that casting the trailing arm, rather than assembling the beam from individual components that are welded together, is the preferred fabrication method as it readily enables the precise beam dimensions determined from the design process to be achieved in the beam as fabricated (see paragraph 0016). Therefore, Galazin clearly advocates a one-piece design and specifically teaches away from assembling a trailing arm from individual components.

Galazin discloses that the weight of the suspension assembly utilizing the optimized I-beam is significantly reduced (see paragraph 0062). Therefore, the motivation proposed in the Office Action for combining the Galazin and Obeshaw references (i.e., to decrease the weight of the trailing arm) has already been accomplished by Galazin.

In addition, the composite shapes taught by Obeshaw are tubular shapes with triangular, rectangular, hexagonal, octagonal, polygonal, elliptical, and circular closed cross-sections (col. 2, ll. 50-56, col. 3, ll. 7-12 and col. 9, l. 66 to col. 10, l. 45). Note that in column 18, lines 4-16 (which was referenced in the Office Action), Obeshaw discloses the structural member can be used whenever a lightweight, strong, cylindrical object is required.

A person having ordinary skill in the art, with the teachings of Obeshaw in hand, would not be motivated to design a composite beam having a generally I-shaped cross-section as recited in independent claim 1 or having a cross-section with at least two flanges and a generally vertical web extending between the flanges as recited in independent claim 29. Furthermore, Obeshaw does not teach or suggest how to fabricate a reliable suspension control arm using a generally I-shaped composite material.

The composite shapes taught by Obeshaw are hollow shapes with triangular, rectangular, hexagonal, octagonal, polygonal, elliptical, and circular cross-sections (col. 9, l. 66-col. 10, l. 45). A person of ordinary skill in the art, with the teachings of Obeshaw in hand, would be motivated to design a composite component with a closed, hollow cross-sectional shape, not a control arm having a generally I-shaped cross-

section as recited in claim 1, or having a cross-section with at least two flanges and a generally vertical web extending between the flanges as recited in claim 29. This is at least in part because Obeshaw teaches directly away from using the I-beam shape of Galazin.

The Board of Patent Appeals and Interferences recently addressed this issue in *Ex Parte Whalen II* (Appeal 2007-4423, July 23, 2008) as follows:

The U.S. Supreme Court recently held that rigid and mandatory application of the “teaching-suggestion-motivation,” or TSM, test is incompatible with its precedents. *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). The Court did not, however, discard the TSM test completely; it noted that its precedents show that an invention “composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.*

The Court held that the TSM test must be applied flexibly, and take into account a number of factors “in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed.” *Id.* at 1740-41. Despite this flexibility, however, the Court stated that “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements in the way the claimed new invention does.” *Id.* “To facilitate review, this analysis should be made explicit.” *Id.*

[W]hen the prior art teaches away from the claimed solution as presented here . . . obviousness cannot be proven merely by showing that a known composition could have been modified by routine experimentation or solely on the expectation of success; it must be shown that those of ordinary skill in the art would have had some apparent reason to modify the known composition in a way that would result in the claimed composition.

In the present case, no convincing reasoning has been presented as to why a person skilled in the art would have been motivated to make the invention recited in the claims. Instead, the cited references teach away from the claimed invention (e.g., Galazin teaches away from a multi-part construction, and Obeshaw teaches away from I-beam shapes), and teach away from their combination with each other (e.g., Obeshaw teaches away from the I-beam shape of Galazin, and Galazin teaches away from using shapes other than optimized I-beam shapes). Accordingly, a person skilled in the art at the time the invention was made would not have found it obvious to produce the recited

invention from the teachings of the Galazin and Obeshaw references, and withdrawal of the rejections of claims 1 and 29, and their dependents, is respectfully requested.

In view of the foregoing amendment and remarks, all of the claims pending in this application are now seen to be in a condition for allowance. A Notice of Allowance of claims 1-7, 9, 12-46 and 48-53 is therefore earnestly solicited.

The examiner is hereby requested to telephone the undersigned attorney of record at (972) 922-6369 if such would expedite the prosecution of the application.

Respectfully submitted,

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Dated: February 14, 2010

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I hereby certify that this correspondence is being
filed in the U.S. Patent and Trademark Office
electronically via EFS-Web, on February 14, 2010.

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